LISTING OF THE CLAIMS:

The listing of claims will replace all prior versions, and listing, of claims in the present application:

Claim 1 (Currently Amended) A method of fabricating a SiGe-on-insulator substrate material comprising:

providing a structure comprising a Si-containing substrate having a hole-rich region formed therein and a Ge-containing layer atop the Si-containing substrate, said providing includes one of (i) growing a p-rich epitaxial layer on an initial Si-containing substrate, forming a single crystal Si-containing layer atop the p-rich epitaxial layer, and forming the Ge-containing layer on the single crystal Si-containing layer, (ii) ion implanting a p-type dopant into an initial single crystal Si-containing substrate and then forming the Ge-containing layer on the substrate, or (iii) forming the Ge-containing layer on an initial single crystal Si-containing substrate and then implanting p-type dopant into the substrate to form said hole-rich region;

converting the ~~one~~ hole-rich region into a porous region; and

annealing the structure including the porous region to provide a substantially relaxed SiGe-on-insulator material.

Claim 2 (Currently Amended) The method of Claim 1 wherein the providing step comprises (i) ~~growing a p-rich epitaxial layer on an initial Si-containing substrate, forming a single crystal Si-containing layer atop the p-rich epitaxial layer, and forming the Ge-containing layer on the single crystal Si-containing layer~~.

Claim 3 (Currently Amended) The method of Claim 1 wherein the providing step comprises (ii) ~~ion implanting a p-type dopant into an initial single crystal Si-containing substrate and then forming the Ge-containing layer on the substrate~~.

Claim 4 (Original) The method of Claim 3 wherein the p-type dopant is Ga, Al, B or BF_2.

Claim 5 (Original) The method of Claim 3 wherein the p-type dopant is B, said B is implanted at an energy of from about 100 keV to about 500 keV and a dose of about 5E15 atoms/cm^2 to about 5E16 atom/cm^2.

Claim 6 (Original) The method of Claim 3 wherein the p-type dopant is BF_2, said BF_2 is implanted at an energy of from about 500 keV to about 2500 keV and a dose of about 5E15 atoms/cm^2 to about 5E16 atom/cm^2.

Claim 7 (Currently Amended) The method of Claim 1 wherein the providing step comprises (iii) ~~forming the Ge-containing layer on an initial single crystal Si-containing substrate and then implanting p-type dopant into the substrate to form said hole-rich region~~.

Claim 8 (Original) The method of Claim 1 wherein said hole-rich region has a p-type dopant concentration of about 1E19 atoms/cm^3 or greater.

Claim 9 (Original) The method of Claim 8 wherein said hole-rich region has a p-type dopant concentration of from about 1E20 atoms/cm^3 to about 5E20 atoms/cm^3.

Claim 10 (Currently Amended) The method of Claim 3 further comprising an activation annealing step which is performed prior to said converting step.

Claim 11 (Currently Amended) The method of Claim 10 wherein the activation annealing step is selected from the group consisting of a furnace anneal, a rapid thermal anneal, and a spike anneal.

Claim 12 (Currently Amended) The method of Claim 11 wherein the activation annealing step is a furnace anneal step, said furnace anneal step is carried out at a temperature of about 600°C or greater for a time period of about 15 minutes or greater in the presence of an inert gas atmosphere, an oxidizing ambient or a mixture thereof.

Claim 13 (Currently Amended) The method of Claim 11 wherein the activation annealing step is a rapid thermal anneal (RTA) step, said RTA step is carried out at a temperature of about 800°C or greater for a time period of about 5 minutes or less in the presence of an inert gas atmosphere, an oxidizing ambient or a mixture thereof.

Claim 14 (Currently Amended) The method of Claim 11 wherein the activation annealing step is a spike annealing step, said spike annealing step is performed at a temperature of about 900°C or greater for a time period of about 1 second or less in the presence of an inert gas atmosphere, an oxidizing ambient or a mixture thereof.

Claim 15 (Currently Amended) The method of Claim 7 further comprising an activation annealing step which is performed prior to said converting step.

Claim 16 (Currently Amended) The method of Claim 15 wherein the activation annealing step is selected from the group consisting of a furnace anneal, a rapid thermal anneal, and a spike anneal.

Claim 17 (Currently Amended) The method of Claim 16 wherein the activation annealing step is a furnace anneal step, said furnace anneal step is carried out at a

temperature of about 600°C or greater for a time period of about 15 minutes or greater in the presence of an inert gas atmosphere, an oxidizing ambient or a mixture thereof.

Claim 18 (Currently Amended) The method of Claim 16 wherein the <u>activation</u> annealing step is a rapid thermal anneal (RTA) step, said RTA step is carried out at a temperature of about 800°C or greater for a time period of about 5 minutes or less in the presence of an inert gas atmosphere, an oxidizing ambient or a mixture thereof.

Claim 19 (Currently Amended) The method of Claim 16 wherein the <u>activation</u> annealing step is a spike annealing step, said spike annealing step is performed at a temperature of about 900°C or greater for a time period of about 1 second or less in the presence of an inert gas atmosphere, an oxidizing ambient or a mixture thereof.

Claim 20 (Original) The method of Claim 1 wherein the converting step comprising an electrolytic anodization process.

Claim 21 (Original) The method of Claim 20 wherein the anodization process is performed in the presence of a HF-containing solution.

Claim 22 (Original) The method of Claim 20 wherein the anodization process is performed using a constant current source operating at a current density of from about 0.05 to about 50 milliAmps/cm^2.

Claim 23 (Original) The method of Claim 1 wherein the porous region has a porosity of about 1% or greater.

Claim 24 (Original) The method of Claim 1 further comprising forming a cap layer atop the Ge-containing layer after said converting step, but prior to said annealing step.

Claim 25 (Original) The method of Claim 24 wherein the cap layer comprises a Si material.

Claim 26 (Original) The method of Claim 1 wherein the annealing step is performed in an oxygen-containing ambient.

Claim 27 (Original) The method of Claim 26 wherein the oxygen-containing ambient further comprises an inert gas.

Claim 28 (Original) The method of Claim 27 wherein the oxygen-containing ambient is selected from the group consisting of O_2, NO, N_2O, ozone, and air.

Claim 29 (Original) The method of Claim 1 wherein the annealing step is performed at a temperature of from about 650°C to about 1350°C.

Claim 30 (Original) The method of Claim 1 wherein the annealing step forms a surface oxide atop the substantially relaxed SiGe-on-insulator material.

Claim 31 (Original) The method of Claim 1 wherein the insulator of said SiGe-on-insulator material is a thermal oxide.

Claim 32 (Original) The method of Claim 1 further comprising forming a Si layer atop the substantially relaxed SiGe-on-insulator material.

Claim 33 (Currently Amended) The method of Claim 1 wherein the hole-rich region~~s are~~ <u>is</u> continuous.

Claim 34 (Original) The method of Claim 1 wherein the hole-rich region comprises discrete islands and said insulator of said substantially relaxed SiGe-on-insulator material comprises discrete islands of thermal oxide.

Claim 35 (Original) The method of Claim 1 further comprising repeating the providing, converting and annealing steps any number of times to provide a multi-layered SiGe-on-insulator material.

Claim 36 (Currently Amended) A method of fabricating a SiGe-on-insulator substrate material comprising:

providing a structure comprising a Si-containing substrate having a region of a high concentration of p-type dopant formed therein and a Ge-containing layer atop the Si-containing substrate, said providing includes one of (i) growing a p-rich epitaxial layer on an initial Si-containing substrate, forming a single crystal Si-containing layer atop the p-rich epitaxial layer, and forming the Ge-containing layer on the single crystal Si-containing layer, (ii) ion implanting the p-type dopant into an initial single crystal Si-containing substrate and then forming the Ge-containing layer on the substrate, or (iii) forming the Ge-containing layer on an initial single crystal Si-containing substrate and then implanting the p-type dopant into the substrate;

converting the region of p-type dopant into a porous region using an anodization process, wherein an HF-containing solution is employed; and

oxidizing the structure including the porous region to provide a substantially relaxed SiGe-on-insulator material.